APPENDIX

Claims pending in U.S.S.N. 09/248,158 after entry of amendments of October 25, 2000 and those presented in this paper.

1. (Once amended) A method for analyzing a sample comprising:

a) providing a sample containing at least two molecular species, wherein at least one of the molecular species is capable of stimulating scintillation;

b) providing a scintillating material, wherein the surface of the scintillating material adsorbs at least one of the molecular species via a general molecular property-based binding interaction between the molecular species and the scintillating material, and where the scintillating material can be stimulated to scintillate by at least one of the adsorbed molecular species, but is generally not stimulated to scintillate by any molecular species which is not adsorbed, where at least one of said molecular species has a presence of, an absence of, or a degree of general molecular property-based binding interaction with the scintillating material distinct from the remainder of the molecular species; and

c) measuring the scintillation emitted by the scintillating material.

2. (Cancelled)

3. The method of claim 1, wherein the general molecular property-based binding interaction is selected from the group consisting of charge-charge interactions, dipole-charge interactions, dipole-dipole interactions and hydrophobic interactions.

4. (Once amended) The method of claim 1, wherein the presence of, the absence of, or the degree of general molecular property-based binding interaction with the scintillating material is due to a chemical or biochemical transformation of one of said molecular species into another of said molecular species, further comprising the step of determining the progress of or degree of completion of the molecular transformation.

5. The method of claim 1, wherein the scintillating material is selected from the group consisting of scintillating plastics and scintillating glasses.

6. The method of claim 1, wherein the scintillating material is a plastic doped with a scintillant.

7. The method of claim 5, wherein the scintillating plastic is selected from the group consisting of polystyrene doped with at least one scintillating fluor and polyvinyltoluene doped with at least one scintillating fluor.

8. (Once amended) The method of claim 1, wherein at least one of the at least two molecular species provided is a substrate for an enzyme-catalyzed reaction or a series of enzyme-catalyzed reactions, another of the at least two molecular species is a product of the enzyme-catalyzed reaction or series of enzyme-catalyzed reactions and has a presence of, absence of, or degree of general molecular property-based binding affinity for the scintillating material distinct from that of the substrate, and where the difference in general molecular property-based binding affinity is a result of the enzyme-catalyzed reaction or series of enzyme-catalyzed reactions.

9. The method of claim 8, wherein the general molecular property-based binding affinity is due to the presence of positive charge, the absence of positive charge, the presence of negative charge, the absence of negative charge, the presence of a dipole moment, the absence of a dipole moment, the presence of hydrophobicity, or the absence of hydrophobicity.

10. The method of claim 8, wherein the enzyme catalyzed reaction is selected from the group consisting of kinase catalyzed reactions, lipase catalyzed reactions, phosphatase catalyzed reactions, protease catalyzed reactions, and tRNA transferase catalyzed reactions.

11-18. Withdrawn.

19. The method of claim 4, further comprising performing the method on a plurality of samples to effect a high throughput screen.

20-28. (Withdrawn).

29. A method for analyzing a sample for the presence and/or activity of an enzyme, said method comprising the steps of:

providing a hydrophobic material;

providing an amphipathic substrate having a hydrophobic portion, and a hydrophilic portion, said hydrophilic portion including a reporter moiety thereupon, said substrate being capable of being cleaved by said enzyme so as to produce a hydrophilic fragment which includes said reporter moiety;

disposing said substrate in said hydrophobic material;

contacting the hydrophobic material having said substrate disposed therein, with said sample and with a polar solvent, whereby any of said enzyme which is present in said sample will cleave said substrate and produce said labeled hydrophilic fragment, which fragment will migrate into said polar solvent; and

detecting the presence of said reporter in said polar solvent or in said hydrophobic layer; whereby the presence of said reporter in said polar solvent and/or the reduction of the quantity of said reporter in said hydrophobic layer is indicative of activity of said enzyme.

30. The method as in claim 29, wherein said hydrophobic material comprises a layer.

31. The method as in claim 30, wherein the step of detecting the presence of said reporter comprises detecting the amount of said reporter in said hydrophobic layer; wherein the concentration of said reporter in said hydrophobic layer is inversely proportional to the activity of said enzyme.

32. The method as in claim 29, wherein the step of detecting the presence of said reporter comprises detecting the amount of said reporter in said polar solvent; whereby the concentration of said reporter in said polar solvent is proportional to the activity of the enzyme.

33. The method as in claim 29, wherein the step of providing a hydrophobic material comprises the further step of supporting said hydrophobic material on a support.

34. The method as in claim 33, wherein said support comprises a micro-well plate.

35. The method as in claim 33, wherein said support comprises a plurality of beads.

36. The method as in claim 33, wherein said reporter is a radioactive material and wherein said support includes a radiation responsive material.

37. The method as in claim 33, wherein said reporter is a non-radioactive material and wherein said support includes a responsive material.

38. The method as in claim 30, wherein said hydrophobic layer is covalently attached to said support.

39. The method as in claim 30, wherein said hydrophobic layer is a lipid.

40. The method as in claim 39, wherein said lipid comprises phosphatidylethanolamine.

41. An assay for analyzing a sample for the presence of an enzyme therein, said assay comprising:

a body of a hydrophobic material;

an amphipathic substrate disposed in said hydrophobic material, said amphipathic substrate including a hydrophobic portion which interacts with said hydrophobic material so as to retain said substrate therein, and a hydrophilic portion having a reporter moiety thereupon, said substrate being capable of being cleaved by said enzyme so as to produce a hydrophilic fragment which includes said reporter moiety.

42. The assay as in claim 41, wherein said body of hydrophobic material is disposed upon a support.

43. The assay as in claim 42, wherein said hydrophobic material is covalently attached to said support.

44. The assay as in claim 41, wherein said hydrophobic material is a lipid.

45. The assay as in claim 44, wherein said lipid comprises phosphatidylethanolamine.

46. The assay as in claim 41, wherein said reporter comprises a radioactive material or a non-radioactive material.